

### § 160.048-3

(b) *Sizes.* Buoyant cushions shall have not less than 225 square inches top surface area; widths and lengths which fall within the dimensions shown in Tables 160.048-4(c)(1)(i) and 160.048-4(c)(1)(ii); and thickness not less than 2 nor more than 3 inches, the thickness to be considered as the finished width of the gusset between seams.

[CGFR 65-37, 30 FR 11583, Sept. 10, 1965]

### § 160.048-3 Materials.

(a) *General.* All components used in the construction of buoyant cushions must meet the applicable requirements of subpart 164.019 of this chapter.

(b) *Kapok.* The kapok shall be all new material complying with Specification subpart 164.003 of this subchapter and shall be properly processed.

(c) *Fibrous glass.* The fibrous glass shall comply with the requirements of specification MIL-B-2766.

(d) *Cover.* Cotton fabrics and coated upholstery cloth meeting the minimum requirements set forth in paragraphs (d) (1) and (2) of this section are acceptable for use as covers for buoyant cushions, but alternate materials will be given special consideration. Pro rata widths of like construction will be acceptable.

(1) *Cotton fabrics.* Cotton fabrics shall comply with the requirements of Federal Specification CCC-C-426 for Type I, Class 3 material.

(2) *Coated upholstery cloth.* Coated upholstery cloth shall comply with the requirements of Federal Specification CCC-A-700.

(e) *Pad covering.* The covering for the buoyant pad inserts shall be flexible vinyl film not less than 0.008 inch in thickness meeting the requirements of Federal Specification L-P-375 for Type I or II, Class 1, film.

(f) *Grab straps.* The grab straps shall be of materials permitted for the cover, or approved equivalent.

(g) *Thread.* Each thread must meet the requirements of subpart 164.023 of this chapter. Only one kind of thread may be used in each seam.

(h) *Welting.* The welting where used may be any fiber or plastic material suitable for the purpose.

[CG FR 65-37, 30 FR 11583, Sept. 10, 1965, as amended by CGD 78-012, 43 FR 27154, June 22, 1978; CGD 84-068, 58 FR 29493, May 20, 1993]

### 46 CFR Ch. I (10-1-03 Edition)

### § 160.048-4 Construction and workmanship.

(a) *General.* This specification covers buoyant cushions of the box type filled with kapok or fibrous glass contained in heat-sealed vinyl film pad covers which are inserted in an outer cover fitted with grab straps. The primary purpose of such cushions is to provide buoyancy to aid a person in keeping afloat in the water. No hooks, snaps, or other means shall be included which might facilitate fastening the cushion to a boat. Buoyant cushions shall be of such size and volume as to provide not less than 20 pounds buoyancy when tested in the manner described in § 160.048-5(e), but no cushion providing less than 225 square inches of top surface area or measuring less than 2 inches or more than 3 inches in thickness will be acceptable.

(b) *Cover.* One piece of material each for the top and bottom shall be stitched together to form the cover except that piecing of the cover material will be allowed provided it is for decorative purposes only. Gusset or boxing materials shall be of not more than two pieces. If more than one piece of material is used for the top, bottom, boxing or gusset, they shall be attached by a double row of stitching of the type shown in Federal Standard No. 751, for seam types SSw-2 or LS(b)-2. The top and bottom may be of any of the materials permitted for the cover, but the boxing or gusset shall be a cotton fabric as specified by § 160.048-3(c)(1) or other equivalent material of a porous nature. Nonporous materials will not be permitted for the boxing or gusset, but coated upholstery cloth specified by § 160.048-3(d)(2), perforated to permit adequate draining and drying will be acceptable.

(c) *Buoyant material.* Buoyant cushions shall be filled with the minimum amounts of kapok or fibrous glass determined as follows:

(1) Rectangular buoyant cushions 2 inches thick shall be filled with the amounts of kapok or fibrous glass indicated for the various widths and lengths of such cushions by Table 160.048-4(c)(1)(i) or 160.048-4(c)(1)(ii), as applicable. Trapezoidal buoyant cushions 2 inches thick shall be filled with the amounts of kapok or fibrous glass

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indicated for the various widths and lengths of rectangular buoyant cushions by Table 160.048-4(c)(1)(i) or 160.048-4(c)(1)(ii) as applicable, on the basis that the length of a trapezoidal cushion shall be considered as its average length in each case.

TABLE 160.048-4(c)(1)(i)—WEIGHT OF KAPOK (IN OUNCES) FOR FILLING RECTANGULAR BUOYANT CUSHIONS 2 INCHES THICK

| Length (inches) | Width (inches)   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
|                 | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19               | 20               | 21               | 22               | 23               | 24               | Over 24          |  |
| 15 .....        | .....            | .....            | .....            | 20               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 16 .....        | .....            | .....            | .....            | 21               | 23               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 17 .....        | .....            | .....            | 21               | 23               | 24               | 26               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 18 .....        | .....            | 21               | 22               | 24               | 26               | 27               | 29               | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 19 .....        | 20               | 22               | 24               | 25               | 27               | 29               | 30               | 32               | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 20 .....        | 21               | 23               | 25               | 27               | 28               | 30               | 32               | 34               | 36               | .....            | .....            | .....            | .....            | .....            |  |
| 21 .....        | 22               | 24               | 26               | 28               | 30               | 32               | 34               | 35               | 37               | 39               | .....            | .....            | .....            | .....            |  |
| 22 .....        | 23               | 25               | 27               | 29               | 31               | 33               | 35               | 37               | 39               | 41               | 43               | .....            | .....            | .....            |  |
| 23 .....        | 25               | 27               | 29               | 31               | 33               | 35               | 37               | 39               | 41               | 43               | 45               | 47               | .....            | .....            |  |
| 24 .....        | 26               | 28               | 30               | 32               | 34               | 36               | 38               | 41               | 43               | 45               | 47               | 49               | 51               | .....            |  |
| 25 .....        | 27               | 29               | 31               | 33               | 36               | 38               | 40               | 42               | 44               | 47               | 49               | 51               | 53               | ( <sup>1</sup> ) |  |
| 26 .....        | 28               | 30               | 32               | 35               | 37               | 39               | 42               | 44               | 46               | 49               | 51               | 53               | 55               | ( <sup>1</sup> ) |  |
| 27 .....        | 29               | 31               | 34               | 36               | 38               | 41               | 43               | 46               | 48               | 50               | 53               | 55               | 58               | ( <sup>1</sup> ) |  |
| 28 .....        | 30               | 32               | 35               | 37               | 40               | 42               | 44               | 47               | 50               | 52               | 55               | 57               | 60               | ( <sup>1</sup> ) |  |
| 29 .....        | 31               | 34               | 36               | 39               | 41               | 44               | 46               | 49               | 52               | 54               | 57               | 59               | 62               | ( <sup>1</sup> ) |  |
| 30 .....        | 32               | 35               | 37               | 40               | 43               | 45               | 48               | 51               | 53               | 56               | 59               | 61               | 64               | ( <sup>1</sup> ) |  |
| 31 .....        | 33               | 36               | 39               | 41               | 44               | 47               | 50               | 52               | 55               | 58               | 61               | 63               | 66               | ( <sup>1</sup> ) |  |
| 32 .....        | 34               | 37               | 40               | 43               | 46               | 48               | 51               | 54               | 57               | 60               | 62               | 65               | 68               | ( <sup>1</sup> ) |  |
| 33 .....        | 35               | 38               | 41               | 44               | 47               | 50               | 53               | 56               | 59               | 62               | 64               | 67               | 70               | ( <sup>1</sup> ) |  |
| 34 .....        | 36               | 39               | 42               | 45               | 48               | 51               | 54               | 57               | 60               | 63               | 66               | 69               | 73               | ( <sup>1</sup> ) |  |
| 35 .....        | 37               | 40               | 44               | 47               | 50               | 53               | 56               | 59               | 62               | 65               | 68               | 72               | 75               | ( <sup>1</sup> ) |  |
| 36 .....        | 38               | 42               | 45               | 48               | 51               | 54               | 58               | 61               | 64               | 67               | 70               | 74               | 77               | ( <sup>1</sup> ) |  |
| Over 36 .....   | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |  |

<sup>1</sup> Determine amount of kapok from formula (1) contained in § 160.048-4(c)(2).

TABLE 160.048-4(c)(1)(ii)—WEIGHT OF FIBROUS GLASS (IN OUNCES) FOR FILLING RECTANGULAR BUOYANT CUSHION 2 INCHES THICK

| Length (inches) | Width (inches)   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
|                 | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19               | 20               | 21               | 22               | 23               | 24               | Over 24          |  |
| 15 .....        | .....            | .....            | .....            | 36               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 16 .....        | .....            | .....            | .....            | 38               | 41               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 17 .....        | .....            | .....            | 38               | 41               | 44               | 46               | .....            | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 18 .....        | .....            | 37               | 40               | 43               | 46               | 49               | 52               | .....            | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 19 .....        | 36               | 40               | 43               | 46               | 49               | 52               | 55               | 58               | .....            | .....            | .....            | .....            | .....            | .....            |  |
| 20 .....        | 38               | 42               | 45               | 48               | 51               | 54               | 58               | 61               | 64               | .....            | .....            | .....            | .....            | .....            |  |
| 21 .....        | 40               | 44               | 47               | 50               | 54               | 57               | 60               | 64               | 67               | 71               | .....            | .....            | .....            | .....            |  |
| 22 .....        | 42               | 46               | 49               | 53               | 56               | 60               | 63               | 67               | 70               | 74               | 77               | .....            | .....            | .....            |  |
| 23 .....        | 44               | 48               | 52               | 55               | 59               | 63               | 66               | 70               | 74               | 77               | 81               | 85               | .....            | .....            |  |
| 24 .....        | 46               | 50               | 54               | 58               | 61               | 65               | 69               | 73               | 77               | 81               | 84               | 88               | 92               | .....            |  |
| 25 .....        | 48               | 52               | 56               | 60               | 64               | 68               | 72               | 76               | 80               | 84               | 88               | 92               | 96               | ( <sup>1</sup> ) |  |
| 26 .....        | 50               | 54               | 58               | 62               | 67               | 71               | 75               | 79               | 83               | 87               | 92               | 96               | 100              | ( <sup>1</sup> ) |  |
| 27 .....        | 52               | 56               | 60               | 65               | 69               | 73               | 78               | 82               | 86               | 91               | 95               | 99               | 104              | ( <sup>1</sup> ) |  |
| 28 .....        | 54               | 58               | 63               | 67               | 72               | 76               | 81               | 85               | 90               | 94               | 99               | 103              | 108              | ( <sup>1</sup> ) |  |
| 29 .....        | 56               | 60               | 65               | 70               | 74               | 79               | 84               | 88               | 93               | 97               | 102              | 107              | 111              | ( <sup>1</sup> ) |  |
| 30 .....        | 58               | 62               | 67               | 72               | 77               | 82               | 86               | 91               | 96               | 101              | 106              | 110              | 115              | ( <sup>1</sup> ) |  |
| 31 .....        | 60               | 64               | 69               | 74               | 79               | 84               | 89               | 94               | 99               | 104              | 109              | 114              | 119              | ( <sup>1</sup> ) |  |
| 32 .....        | 61               | 67               | 72               | 77               | 82               | 87               | 92               | 97               | 103              | 108              | 113              | 118              | 123              | ( <sup>1</sup> ) |  |
| 33 .....        | 63               | 69               | 74               | 79               | 84               | 90               | 95               | 100              | 106              | 111              | 116              | 121              | 127              | ( <sup>1</sup> ) |  |
| 34 .....        | 65               | 71               | 76               | 82               | 87               | 92               | 98               | 103              | 109              | 114              | 120              | 125              | 131              | ( <sup>1</sup> ) |  |
| 35 .....        | 67               | 73               | 78               | 84               | 90               | 95               | 101              | 106              | 112              | 118              | 123              | 129              | 134              | ( <sup>1</sup> ) |  |
| 36 .....        | 69               | 75               | 81               | 86               | 92               | 98               | 104              | 109              | 115              | 121              | 127              | 132              | 138              | ( <sup>1</sup> ) |  |
| Over 36 .....   | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |  |

<sup>1</sup> Determine amount of fibrous glass from formula (2) contained in § 160.048-4(c)(2).

(2) All buoyant cushions more than 2 inches thick, and all buoyant cushions 2 inches thick which are of shapes different from those covered by paragraph (c)(1) of this section, shall be filled with kapok or fibrous glass as determined in the following formulas:

Amount of kapok (ounces) =  $A \times t \div 22.5$   
(1)

Amount of fibrous glass (ounces) =  $A \times t \div 12.5$  (2)

Where:

A = Top surface area of cushion in square inches as determined from measurements taken along finished edges.

t = Thickness of boxing or gusset of finished cushion in inches.

(d) *Pad covers for buoyant material.* Before being inserted in the outer cover the buoyant material shall be placed in waterproof vinyl film pad covers which shall be heat-sealed tight. The heat-sealed pad seams shall show an adhesion of not less than 8 pounds when one inch strips cut across and perpendicular to the seams are pulled apart at a rate of separation of the clamping jaws of the test machine of 12 inches per minute. Each cushion shall contain not less than four pads and all pads in a cushion shall contain approximately equal portions of the total amount of buoyant material in the cushion. The buoyant material may be inserted directly into the vinyl film pad covers, or may first be packed in bags made of print cloth or other suitable material and then inserted into the vinyl film pad covers. The pads shall be of such size as to adequately fill the outer cover, and prior to sealing, the pads shall be evacuated of air sufficiently that when sat on the pads will not "balloon" excessively because of the pressure in the pad covers. For 15"×15"×2" cushions the four vinyl film pad covers shall each be cut approximately 12" wide × 12" long or approximately 8" wide × 18" long shall have a sealed area of approximately 125 square inches; shall contain not less than 5 ounces of kapok or 9 ounces of fibrous glass each; and the volume displacement of the individual heat-sealed pad inserts shall be 5½ pounds each, plus or minus ½ pound, when tested in accordance with the method set forth in § 160.048-5(e)(1), except that the pad

covers shall not be slit open, and the period of submergence shall be only long enough to determine the displacement of the pads.

(e) *Grab straps.* Grab straps shall be attached as shown on Dwg. No. 160.048-1 and shall finish 20 inches long and 1 inch wide at opposite ends. The grab straps, if formed from cover material shall be folded and stitched together so as to produce a double thickness with raw edges turned under. Other means will be given special consideration.

(f) *Seams and stitching.* Seams shall be constructed with not less than a ⅜ inch border between the seam and the edge of the cover materials. All stitching shall be a lock stitch, 7 to 9 stitches per inch, except as follows: Chain stitching 6 to 8 stitches per inch, with 20/4 thread on top and 40/3 thread on the bottom, will be acceptable in constructing straps.

(g) *Workmanship.* All cushions shall be of first class workmanship and shall be free from defects materially affecting their appearance or service ability. Cushions classified as "seconds" or "irregular" will not be acceptable under this specification.

[CGFR 65-37, 30 FR 11583, Sept. 10, 1965]

**§ 160.048-5 Inspections and tests.<sup>1</sup>**

(a) *General.* Manufacturers of listed and labeled buoyant cushions shall maintain quality control of the materials used, manufacturing methods and the finished product so as to meet the applicable requirements, and shall make sufficient inspections and tests of representative samples and components produced to maintain the quality of the finished product. Records of tests conducted by the manufacturer and records of materials, including affidavits by suppliers that applicable requirements are met, entering into construction shall be made available to the recognized laboratory inspector or the Coast Guard inspector, or both, for review upon request. Any examinations, inspections and test which are required by the recognized laboratory

<sup>1</sup>The manufacturer of a personal flotation device must meet 33 CFR 181.701 through 33 CFR 181.705 which require an instruction pamphlet for each device that is sold or offered for sale for use on recreational boats.